

with the *lorquini* in hot pursuit (i.e., within 10 cm). The pair made a number of wide circles in a large (30 m) sunny area above a stream adjacent to the road, ending when the female alit on a shrub (*Quercus dumosa* Nutt., Fagaceae; a possible foodplant of *b. californica*). The *lorquini* male immediately alit beside her and nudged her with his curled abdomen in repeated attempts to copulate. The female avoided this by turning her abdomen away from the male or by short flicks of the wings. These behaviors continued for approximately one minute, then the male flew to a nearby (2 m) bush and perched while the female basked. When the female flew again after an interval of approximately 90 seconds, the male gave chase, and the pair was lost from sight. The weather was sunny and clear with little wind, temperature approximately 26°C. *A. b. californica* males were quite common in the canyon, but only eight *lorquini* males were seen over the span of three hours. Additionally, three *b. californica* females and one *lorquini* female were collected. These densities are representative of most spring seasons.

Because I did not see the beginning of the encounter, it is not clear whether the female above initiated the fluttering courtship flight using wing pattern cues from the male *Limenitis*, or if receptive females simply initiate the fluttering flight whenever pursued. It does appear clear, however, that the female *Adelpha* rejected the inappropriate suitor only after she had begun the fluttering courtship display. Whether this was on the basis of visual or pheromonal cues remains unknown. The male *lorquini* seemed completely unaware of his *faux pas* throughout the encounter. As in *Erynnis* reported by Shapiro (*op. cit.*), male *Limenitis* appear to rely exclusively on visual cues during courtship.

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A Bibliography of *Euphydryas*

Checkerspot butterflies of the genus *Euphydryas* are among the most well studied Lepidoptera, and have become key organisms for testing ecological and evolutionary theory. Here we have compiled a bibliography of papers concerning this genus. We suspect that this bibliography will be a useful resource both to those working directly with *Euphydryas* and to those with a more general interest in butterfly ecology. The topics included cover distributional notes, population dynamics, population genetics, host plant and parasitoid interactions, and behavior. We have endeavored to make this bibliography as complete as possible, but in an effort to produce a bibliography of manageable size we have excluded most taxonomic descriptions. Those for the most part are referenced in Gunder (1929), Miller and Brown (1981, A Catalogue/Checklist of the Butterflies of America North of Mexico. The Lepidopterists Society Memoir No. 2), Kudrna (1985, Butterflies of Europe; Concise Bibliography of European Butterflies. AULA-Verlag Wiesbaden), and various works by Higgins.

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- BESNOIST, G., 1970. Note sur l'abondance d'*Euphydryas cynthia* au Lac d'Allos. *Alexanor* 6:319-320.
- BETZ, J. T., 1956. *Melitaea aurinia* Rott. en Algerie. *Rev. Franc Lepid. Paris* 15:143-144.
- BOROWSKY, R., 1977. Detection of the effects of natural selection of protein polymorphisms in natural populations by means of a distance analysis. *Evolution* 31:341-346.
- BOURGOGNE, J., 1960. *Euphydryas intermedia* Men. dans les Hautes Alpes. *Alexanor* 1:253-254.
- BOWE, J. J., 1972. Another larval foodplant for *Euphydryas phaeton* (Drury) (Nymphalidae). *J. Lepid. Soc.* 26:122.
- BOWERS, M. D., 1978. Overwintering behavior in *Euphydryas phaeton* (Nymphalidae). *J. Lepid. Soc.* 32:282-288.
- BOWERS, M. D., 1979. Unpalatability as a defense strategy of checkerspot butterflies with special reference to *Euphydryas phaeton* (Nymphalidae). Ph. D. Dissertation, Univ. of Mass.
- BOWERS, M. D., 1980. Unpalatability as a defense strategy of *Euphydryas phaeton*. *Evolution* 34:586-600.
- BOWERS, M. D., 1981. Unpalatability as a defense strategy of western checkerspot butterflies (*Euphydryas*). *Evolution* 35:367-375.
- BOWERS, M. D., 1983. Mimicry in North American checkerspot butterflies: *Euphydryas phaeton* and *Chlosyne harrisii* (Nymphalidae). *Ecol. Entomol.* 8:1-8.
- BOWERS, M. D., 1983. Iridoid glycosides and larval hostplant specificity in checkerspot butterflies (*Euphydryas*: Nymphalidae). *J. Chem. Ecol.* 9:475-493.
- BOWERS, M. D., 1985. Host plant choice of checkerspot larvae: *Euphydryas chalcedona*, *E. colon*, and hybrids (Lepidoptera: Nymphalidae). *Psyche* 92:39-48.
- BOWERS, M. D., 1986. Population differences in larval host plant use in the checkerspot butterfly *Euphydryas chalcedona*. *Entomol. Exp. App.* 40:61-69.
- BOWERS, M. D., I. L. BROWN, & D. R. WHEYE, 1985. Bird predation as a selective agent in a butterfly population. *Evolution* 39:93-103.
- BOWERS, M. D., & G. M. PUTTICK, 1986. Fate of ingested iridoid glycosides in lepidopteran herbivores. *J. Chem. Ecol.* 12:169-178.
- BRETHERTON, R. F., 1981. On rearing the Spanish Fritillary *Eurodryas desfontainii* Godart. *Proc. Trans. Br. Ent. Nat. Hist. Soc.* 14:109-111.
- BROWN, I. L. & P. R. EHRLICH, 1980. Population biology of the checkerspot butterfly *Euphydryas chalcedona*. Structure of the Jasper Ridge colony. *Oecologia* 47:239-251.
- BROWN, K. S., 1965. Some unusual butterfly records from central California. *J. Lepid. Soc.* 19:171-175.
- BRUSSARD, P. F. & P. R. EHRLICH, 1970. Contrasting population biology of two species of butterfly. *Nature* 227:91-92.
- BRUSSARD, P. F., P. R. EHRLICH, & M. C. SINGER, 1974. Adult movements and population structure in *Euphydryas editha*. *Evolution* 28:408-415.
- BRUSSARD, P. F. & A. T. VAWTER, 1975. Population structure, gene flow, and natural selection in populations of *Euphydryas phaeton*. *Heredity* 34:407-415.
- BRUSSARD, P. F., P. R. EHRLICH, D. D. MURPHY, B. A. WILCOX, J. WRIGHT, 1985. Genetic distances and the taxonomy of checkerspot butterflies (Nymphalidae):

- Nymphalinae) J. Kans. Ent. Soc. 58:403-412.
- CHAPMAN, T. A., 1905. Cryptic form and colouring of *Melitaea* larvae. Entomologist 38:73.
- CLARK, A. H., 1927. Notes on the melitaeid butterfly *Euphydryas phaeton* (Drury) with descriptions of a new subspecies and a new variety. Proc. U. S. Nat. Mus. Wash. 71, article no. 2683, p. 1-22.
- COMSTOCK, J. A., 1940. Some notes on the early stages of *Euphydryas gillettii* Barnes. Proc. S. Calif. Acad. Sci. 39:111-113.
- COMSTOCK, J. A., 1958. Random notes on early stages of Lepidoptera. Bull. S. Cal. Acad. Sci. 57:114-115.
- CULLENWARD, M. J., P. R. EHRLICH, R. R. WHITE, & C. E. HOLDREN, 1979. The ecology and genetics of an alpine checkerspot butterfly, *Euphydryas anicia*. Oecologia 38:1-12.
- DOBKIN, D. S., I. OLIVIERI, P. R. EHRLICH, 1987. Rainfall and the interaction of microclimate with larval resources in the population dynamics of checkerspot butterflies (*Euphydryas editha*) inhabiting serpentine grasslands. Oecologia. 71:161-176.
- DOUDOROFF, M., 1935. Notes on two local butterflies. Pan-Pac. Entomol. 11:144.
- DOUDOROFF, M., 1937. Notes on California *Euphydryas* species. Can. Entomol. 69:117-119.
- EHRLICH, P. R., 1961. Intrinsic barriers to dispersal in the checkerspot butterfly, *Euphydryas editha*. Science 134:108-109
- EHRLICH, P. R., 1965. The population biology of the butterfly, *Euphydryas editha*. II. The structure of the Jasper Ridge colony. Evolution 19:327-336.
- EHRLICH, P. R., 1979. The butterflies of Jasper Ridge. Coevolution Quart. 1979:50-55.
- EHRLICH, P. R., & S. E. DAVIDSON, 1960. Techniques for capture-recapture studies of Lepidoptera populations. J. Lepid. Soc. 14:227-229.
- EHRLICH, P. R., A. E. LAUNER, & D. D. MURPHY, 1984. Can sex ratio be determined? The case of a population of checkerspot butterflies. Amer. Nat. 124:527-539.
- EHRLICH, P. R., & L. G. MASON, 1966. The population biology of the butterfly *Euphydryas editha*. III. Selection and phenetics of the Jasper Ridge colony. Evolution 20: 165-173.
- EHRLICH, P. R. & D. D. MURPHY, 1981. The population biology of checkerspot butterflies (*Euphydryas*) — a review. Biol. Zentral. 100:613-629.
- EHRLICH, P. R. & D. D. MURPHY, 1987. Monitoring populations on remnants of native habitat. pp. 201-210. In: Saunders, D. et al. Nature Conservation: The Role of Remnants of Native Vegetation. Surrey Beatty.
- EHRLICH, P. R., D. D. MURPHY, M. C. SINGER, C. B. SHERWOOD, R. R. WHITE, & I. L. BROWN, 1980. Extinction, reduction, stability and increase: the responses of checkerspot butterfly populations to the California drought. Oecologia 46:101-105.
- EHRLICH, P. R., & D. WHEYE, 1985. Some observations on the spatial distribution in a montane population of *Euphydryas editha*. J. Res. Lepid. 23:243-252.
- EHRLICH, P. R., & D. WHEYE, 1986. Non-adaptive "hilltopping" behavior in male checkerspot butterflies (*Euphydryas editha*). Amer. Nat. 127:447-483.
- EHRLICH, P. R., & R. R. WHITE, 1980. Colorado checkerspot butterflies: isolation, neutrality, and the biospecies. Amer. Nat. 115:328-341.
- EHRLICH, P. R., R. R. WHITE, M. C. SINGER, S. W. MCKECHNIE, & L. E. GILBERT, 1975. Checkerspot butterflies: A historical perspective. Science 188:221-228.
- FORD, H. B., & E. B. FORD, 1930. Fluctuations in numbers, its influence on variation,

in *Melitaea aurinia*, Rott. (Lepidoptera). Trans. Entomol. Soc. Lond. 78:345-351.

- FOUNTAIN, E. M., 1906. *Melitaea desfontainii* and *M. aurinia* var. *iberica* in central Aragon. Entomologist 39:42-43.
- GERBER, H., 1972. Speziation und Biologie von *Euphydryas aurinia aurinia* Rott., *E. aurinia debelis* Oberth. und *E. aurinia debelis* F. *glaciageita* Verity. Mitt. ent. Ges. Basel 22:73-87.
- GILBERT, L. E., Influences of resource distribution and abundance on butterfly population structure. Ph. D. Thesis, Stanford Univ.
- GILBERT, L. E., & M. C. SINGER, 1973. Patterns of dispersal and gene flow in a butterfly species. Amer. Nat. 107:58-72.
- GUNDER, J. D., 1929. The genus *Euphydryas* Scud. of boreal America (Lepidoptera: Nymphalidae). Pan-Pac. Entomol. 6:1-8.
- HARRISON, J. W. H., 1943. The range of *Euphydryas aurinia* in the Hebrides and some possible deduction therefrom. Entomologists Rec. J. Var. 55:27.
- HIGGINS, L. G., 1950. A descriptive catalogue of the Palaearctic *Euphydryas* (Lepidoptera: Rhaplocera). Trans. R. ent. Soc. Lond. 101:437-489.
- HIGGINS, L. G., 1955. A descriptive catalogue of the genus *Mellicta* Billberg and its species, with supplementary notes on the genera *Melitaea* and *Euphydryas*. Trans R. ent. Soc. Lond. 106:1-131.
- HIGGINS, L. G., 1978. A revision of the genus *Euphydryas* Scudder (Lepidoptera: Nymphalidae). Entomol. Gaz. 29:109-115.
- HOLDREN C. E., & P. R. EHRLICH, 1981. Long-range dispersal in checkerspot butterflies: transplant experiments with *Euphydryas gillettii*. Oecologia 50:125-129.
- HOLDREN, C. E., & P. R. EHRLICH, 1982. Ecological determinants of food plant choice in the checkerspot butterfly *Euphydryas editha* in Colorado. Oecologia 52:417-423.
- HOVANITZ, W., 1941. The selective value of aestivation and hibernation in a California butterfly. Bull. Brooklyn Entomol. Soc. 36:133-136.
- HOVANITZ, W., 1941. Parallel ecogenotypical color variation in butterflies. Ecology 22:259-284.
- HOVANITZ, W., 1942. Genetic and ecological analyses of wild populations in Lepidoptera. I. Pupal size and weight variation in some California populations of *Melitaea chalcona*. Ecology 23:175-188.
- IWASA, Y., F. J. ODENDAAL, P. R. EHRLICH, D. D. MURPHY, & A. E. LAUNER, 1983. Emergence patterns in male butterflies: A hypothesis and a test. Theor. Pop. Biol. 23:363-379.
- JEWETT, S. G., 1959. Concerning subspeciation in western North American *Euphydryas*. J. Lepid. Soc. 13:171-173.
- JOHNSON, E. E., 1955. Differences between adjacent colonies of *Euphydryas aurinia* Rott. Entomol. Rec. J. Var. 67:132.
- JOHNSON, M., A. KEITH, & P. R. EHRLICH, 1968. Population biology of the butterfly *Euphydryas editha*. VII. Has *E. editha* evolved a serpentine race? Evolution 22:422-423.
- LABINE, P. A., 1964. Population biology of the butterfly, *Euphydryas editha*. I. Barriers to multiple inseminations. Evolution 18:335-336.
- LABINE, P. A., 1966. The reproductive biology of the checkerspot butterfly, *Euphydryas editha*. Ph. D. Thesis, Stanford Univ.
- LABINE, P. A., 1966. The population biology of the butterfly *Euphydryas editha*.

- IV. Sperm precedence — a preliminary report. *Evolution* 20:580-586.
- LABINEE, P. A., 1968. The population biology of the butterfly, *Euphydryas editha*.
VIII. Oviposition and its relation to patterns of oviposition in other butterflies. *Evolution* 22:799-806.
- LAJONQUIERE, Y. DE., 1966. A propos de l'*Euphydryas desfontainii* Godart et des ses sous-especes. *Alexanor* 4:347-353.
- LEEUW, I., 1980. An alternate food plant for *Euphydryas phaeton* (Lepidoptera: Nymphalidae). *The Great Lakes Entomologist*, p. 59.
- LEGERE, M. J. & W. HOVANITZ, 1951. Genetic and ecological analyses of wild populations in Lepidoptera. II. Color pattern variations in *Melitaea chalcadon*. *Wasmann Jour. of Biol.* 9:257-310.
- LINCOLN, D. E., 1985. Host plant protein and phenolic resin effects on larval growth and survival of a butterfly. *J. Chem. Ecol.* 11:1459-1467.
- LINCOLN, D. E., T. S. NEWTON, P. R. EHRLICH & K. S. WILLIAMS, 1982. Coevolution of the checkerspot butterfly *Euphydryas chalcadon* and its larval food plant *Diplacus aurantiacus*; larval response to protein and leaf resin. *Oecologia* 52:216-223.
- LUCKENS, C. J., 1985. *Hypodryas intermedia* M'en'etri'es in Europe: an account of the life history. *Ent. Rec. J. Var.* 97:37-45.
- MACKAY, D. A., 1982. Searching behavior and host plant selection by ovipositing *Euphydryas editha* butterflies. Ph. D. Dissertation, Univ. of Texas, Austin.
- MACKAY, D. A., 1985. Conspecific host discrimination by ovipositing *Euphydryas editha* butterflies: Its nature and consequences for offspring survivorship. *Res. Pop. Ecol. (Kyoto)* 27:87-98.
- MACKAY, D. A., 1985. Pre-alighting search behavior and host plant selection by ovipositing *Euphydryas editha* butterflies. *Ecology* 66:142-151.
- MAEKI, K., & C. L. REMINGTON, 1960. Studies of the chromosomes of North American Rhopalacera. 4. Nymphalinae, Charaxidinae, Libytheinae. *J. Lepid. Soc.* 14:179-201.
- MASON, L. G., P. R. EHRLICH, & T. C. EMMEL, 1967. The population biology of the butterfly *Euphydryas editha*. V. Character clusters and asymmetry. *Evolution* 21:85-91.
- MASON, L. G., P. R. EHRLICH, & T. C. EMMEL, 1968. The population biology of the butterfly *Euphydryas editha*. IV. Phenetics of the Jasper Ridge colony, 1965-66. *Evolution* 22:46-54.
- MASTERS, J. H., 1968. *Euphydryas phaeton* in the Ozarks (Lepidoptera: Nymphalidae). *Entomol. News* 79:85-91.
- MAZEL, R., 1977. Premiere contribution experimentale a la connaissance taxonomique et phyletique e quelques formes d'*Euphydryas aurinia* Rott. *Entomops* 44:103-112.
- MAZEL, R., 1981. Etude experimentale des relations trophiques a caractere genotypique chez *Euphydryas aurinia* Rott. *Congr. natn. Soc. savantes* 106:315-323.
- MAZEL, R., 1982. Interests biogeographique et phyletique de deux sous-especes nouvelles d'*Eurodryas aurinia* Rott. *Alexanor* 12: 303-316.
- MAZEL, R., 1982. Exigences trophiques et evolution dans les genres *Euphydryas* et *Melitaea* sensu lato. *Anns. Soc. Ent. Fr. (N. S.)* 18:211-227.
- MCKECHNIE, S. W., P. R. EHRLICH, & R. R. WHITE, 1975. Population genetics of *Euphydryas* butterflies. I. Genetic variation and the neutrality hypothesis. *Genetics* 81:571-594.

- MOONEY, H. A., P. R. EHRLICH, D. LINCOLN & K. S. WILLIAMS, 1980. Environmental controls on the seasonality of a drought deciduous shrub, *Diplacus aurantiacus* and its predator, the checkerspot butterfly, *Euphydryas chalcedona*. *Oecologia* 45:143-146.
- MOONEY, H. A., K. S. WILLIAMS, D. E. LINCOLN, & P. R. EHRLICH, 1981. Temporal and spatial variability in the interaction between the checkerspot butterfly, *Euphydryas chalcedona* and its principal food source, the California shrub, *Diplacus aurantiacus*. *Oecologia* 50:195-198.
- MOUCHA, J., 1959. K. rozsirene rodu *Euphydryas* Scudd V Ceskoslovensku. *Cas. Narod. Mus.* 128:92.
- MUELLER, L. E., B. A. WILCOX, P. R. EHRLICH, D. G. HECKEL, & D. D. MURPHY, 1985. A direct assessment of the role of genetic drift in determining allele frequency variation in populations of *Euphydryas editha*. *Genetics* 110:495-511.
- MULLER, J., 1969. A new food plant for *Euphydryas phaeton*. *J. Lepid. Soc.* 23:48.
- MURPHY, D. D., 1981. The role of adult resources in the population biology of checkerspot butterflies of the genus *Euphydryas*. Ph. D. Dissertation, Stanford Univ.
- MURPHY, D. D., 1983. Nectar sources as constraints on the distribution of egg masses by the checkerspot butterfly, *Euphydryas chalcedona* (Lepidoptera: Nymphalidae). *Environ. Entomol.* 12:463-466.
- MURPHY, D. D., 1983. On the status of *Euphydryas editha baroni* with a range extension of *E. editha luestherae*. *J. Res. Lepid.* 21:194-198.
- MURPHY, D. D., 1984. Butterflies and their nectar plants: The role of *Euphydryas editha* as a pollen vector. *Oikos* 43:113-117.
- MURPHY, D. D. & P. R. EHRLICH, 1980. Two checkerspot subspecies: one new, one on the verge of extinction. *J. Lepid. Soc.* 34:316-320.
- MURPHY, D. D. & P. R. EHRLICH, 1983. Biosystematics of the *Euphydryas* of the central Great Basin with the description of a new subspecies. *J. Res. Lepid.* 22:254-261.
- MURPHY, D. D. & P. R. EHRLICH, A note on the biosystematics of the *Euphydryas* of central Utah. *Utahensis* 3:53-54.
- MURPHY, D. D., A. E. LAUNER, & P. R. EHRLICH, 1983. The role of nectar feeding in egg production and populations dynamics of the checkerspot butterfly, *Euphydryas editha*. *Oecologia* 56:257-263.
- MURPHY, D. D., M. S. MENNINGER, & P. R. EHRLICH, 1984. Nectar source distribution as a determinant of oviposition host species in *Euphydryas chalcedona*. *Oecologia* 62:269-271.
- MURPHY, D. D., M. S. MENNINGER, P. R. EHRLICH, & B. A. WILCOX, 1986. Local population dynamics of adult butterflies and the conservation status of two closely related species. *Biol. Conserv.* 37:201-223.
- MURPHY, D. D., & R. R. WHITE, 1984. Rainfall, resources, and dispersal in southern populations of *Euphydryas editha* (Lepidoptera: Nymphalidae). *Pan-Pac Ent.* 60:350-354.
- ODENDAAL, F. J., P. R. EHRLICH, & F. C. THOMAS, 1985. Structure and function of the antennae of *Euphydryas editha* (Lepidoptera: Nymphalidae). *J. Morphol.* 184:3-22.
- PEARSE, K., & P. R. EHRLICH, 1979. B chromosome variation in *Euphydryas colon*. *Chromosoma* 73:263-274.
- PHILLIPSON, D. E., 1967. Environmental variations in *Euphydryas anicia eurytion*. *J. Lepid. Soc.* 21:261-270.

- PORTER, K., 1981. The population dynamics of small colonies of the butterfly *Euphydryas aurinia*. Ph. D. Dissertation, Oxford Univ.
- PORTER, K., 1982. Basking behavior in larvae of the butterfly *Euphydryas aurinia*. *Oikos* 38:308-312.
- PORTER, K., 1983. Multivoltinism in *Apantales bignelli* and the influence of weather on synchronization with its host *Euphydryas aurinia*. *Ent. Exp. Appl.* 34:155-162.
- PORTER, K., 1984. Sunshine, sex-ratio and behaviour of *Euphydryas aurinia* larvae. In: Vane Wright and Ackery, eds. *The Biology of Butterflies*. Academic Press, London.
- RAUSHER, M. D., 1982. Population differentiation in *Euphydryas editha* butterflies: Larval adaptation to different hosts. *Evolution* 36:581-590.
- RAUSHER, M. D., D. A. MACKAY, & M. C. SINGER, 1981. Pre- and post-alighting host discrimination by *Euphydryas editha* butterflies: the behavioral mechanisms causing clumped distributions of egg clusters. *Anim. Behav.* 29:1220-1228.
- ROOCA, L., 1928. *L'Euphydryas maturna* L. e *wolfensbergeri* Frey in Italia. *Memorie Soc. ent. Ital.* 16:124-128.
- SCOTT, J. A., 1978. A survey of valvae of *Euphydryas chalcedona*, *E. c. colon*, and *E. c. anicia*. *J. Res. Lepid.* 17:245-252.
- SELZER, A., 1911. Die Lebensgewohnheiten der Raupen von *Melitaea maturna* L. in Holstein. *Int. ent. Z.* 5:215-216.
- SINGER, M. C., 1971. Ecological studies on the butterfly, *Euphydryas editha*. Ph. D. Dissertation, Stanford University, Stanford, CA.
- SINGER, M. C., 1971. Evolution of foodplant preferences in the butterfly *Euphydryas editha*. *Evolution* 35:383-389.
- SINGER, M. C., 1972. Complex components of habitat suitability within a butterfly colony. *Science* 173:75-77.
- SINGER, M. C., 1982. Quantification of host specificity by manipulation of oviposition behavior in the butterfly *Euphydryas editha*. *Oecologia* 52:224-229.
- SINGER, M. C., 1983. Determinants of multiple host use by a phytophagous insect population. *Evolution* 37:389-403.
- SINGER, M. C., 1984. Butterfly-host plant relationships: host quality, adult choice, and larval success. In: Vane-Wright and Ackery, eds. *The Biology of Butterflies*. Academic Press, London.
- SINGER, M. C. & P. R. EHRLICH, 1979. Population dynamics of the checkerspot butterfly *Euphydryas editha*. *Fortschr. Zool.* 25:53-60.
- SPOMER, S., 1985. Observations on the life history of *Occidryas anicia bernadetta* (Nymphalidae) at the type locality. *J. Lepid. Soc.* 39:55-57.
- STAMP, N. E., 1979. New oviposition plant for *Euphydryas phaeton*. *J. Lepid. Soc.* 33:203-204.
- STAMP, N. E., 1980. Effects of group size on an egg clustering butterfly. Ph. D. Dissertation, Univ. of Maryland.
- STAMP, N. E., 1980. Egg deposition patterns in butterflies: why do some species cluster their eggs rather than deposit them singly? *Amer. Natur.* 115:367-380.
- STAMP, N. E., 1981. Effect of group size on parasitism in a natural population of the Baltimore checkerspot, *Euphydryas phaeton*. *Oecologia* 49:201-206.
- STAMP, N. E., 1981. Parasitism of single and multiple egg clusters of *Euphydryas phaeton* (Nymphalidae). *J. N. Y. Ent. Soc.* 89:89-97.

- STAMP, N. E., 1981. Behavior of parasitized aposematic caterpillars: advantage to the parasitoid or host? *Am. Nat.* 118:715-725.
- STAMP, N. E., 1982. Aggregation behavior in Baltimore checkerspot caterpillars, *Euphydryas phaeton* (Nymphalidae). *J. Lepid. Soc.* 36:31-41.
- STAMP, N. E., 1982. Selection of oviposition sites by the Baltimore checkerspot, *Euphydryas phaeton* (Nymphalidae). *J. Lepid. Soc.* 36:290-302.
- STAMP, N. E., 1982. Behavior interactions of parasitoids and Baltimore checkerspot caterpillars (*Euphydryas phaeton*). *Environ. Ent.* 11:100-104.
- STAMP, N. E., 1982. Searching behavior of parasitoids for webmaking caterpillars: a test of optimal searching theory. *J. Animal Ecol.* 52:387-395.
- STAMP, N. E., 1984. Effect of defoliation by checkerspot caterpillars (*Euphydryas phaeton* and sawfly larvae (*Macrophya nigra* and *Tenthredo grandis*) on their host plants (*Chelone* spp.). *Oecologia* 63:275-280.
- STAMP, N. E., 1984. Interactions of parasitoids and checkerspot caterpillars *Euphydryas* spp. (Nymphalidae). *J. Res. Lepid* 23:2-18.
- STERNMITZ, F. S., D. R. GARDNER, F. J. ODENDAAL, & P. R. EHRLICH, 1986. *Euphydryas anicia* utilization of iriodoid glycosides from *Castilleja* and *Besseyia* (Scophulariaceae) *J. Chem. Ecol.* 12:1456-1468.
- TEMPLADO, J., 1975. La regulacion natural de las poblaciones de *Euphydryas aurinia* Rott. *Bol. Estn. Ecol. Madrid* 4:77-81.
- THOMAS, C. D., & M. C. SINGER, 1987. Variation in host preference affects movement patterns within a butterfly population. *Ecology*: in press.
- THOMAS, C. D., D. NG, M. C. SINGER, J. L. B. MALLETT, C. PARMESAN, & H. L. BILLINGTON, 1987. Incorporation of a European weed into the diet of a North American herbivore. *Evolution*: In Press.
- THORNE, F., 1970. Habitat: *Euphydryas editha wrighti*. *J. Res. Lepid.* 7:167.
- TILDEN, J. W., 1958. Some notes on the life history of *Euphydryas editha bayensis*. *J. Lepid. Soc.* 12:33-35.
- TOLIVER, M., 1971. A record of *Euphydryas anicia* (Nymphalidae) in Oklahoma. *J. Lepid. Soc.* 25:246.
- TURATI, E., 1910. Zwei neue italienische *Melitaea aurinia* Formen. *Ent. Z. Frankf. a.M.* 23:233.
- VAWTER, A. T. & J. WRIGHT, 1986. Genetic differentiation between subspecies of *Euphydryas phaeton* (Nymphalidae: Nymphalinae). *J. Res. Lepid.* 25:25-29.
- VARGA, Z., & G. SANTHA, 1973. Verbreitung und taxonomische Gliederung der *Euphydryas maturna* L. in So-Europa (*Euphydryas*-Studien 1.) *Acta Biol. debrecina* 10/11 (1972/73):213-231.
- VERITY, R., 1928. An essay on the geographic variation of the Rhopalocera exemplified by *Melitaea aurinia* Rott. *Entomologists Rec. J. Var.* 40:41-45, 86-91, 97-101.
- VINE-HALL, J. H., 1979. *Euphydryas aurinia* Rott. present in Cumbria. *Entomologist's Rec. J. Var.* 91:24-25.
- WEISS, S. B., R. R. WHITE, D. D. MURPHY, & P. R. EHRLICH, 1987. Growth and dispersal of larvae of the checkerspot butterfly *Euphydryas editha*. *Oikos*, in press.
- WHEELER, G., 1915. The genus *Melitaea*. *Proc. S. Lond. ent. nat. Hist. Soc.* 1914-1915:1-16.
- WHEYE, D., & P. R. EHRLICH, 1985. The use of fluorescent pigments to study insect behavior: investigating mating patterns in a butterfly population. *Ecol. Entomol.* 10:231-234.
- WHITE, R. R., 1973. Community relationships of the butterfly *Euphydryas editha*.

- Ph. D. Dissertation, Stanford Univ.
- WHITE, R. R., 1974. Foodplant defoliation and larval starvation of *Euphydryas editha*. *Oecologia* 14:307-315.
- WHITE, R. R., 1979. Foodplant of alpine *Euphydryas anicia* (Nymphalidae). *J. Lepid. Soc.* 33:170-173.
- WHITE, R. R., 1980. Inter-peak dispersal in alpine checkerspot butterflies (Nymphalidae). *J. Lepid. Soc.* 34:353-362.
- WHITE, R. R., 1986. Pupal mortality in the bay checkerspot butterfly. *J. Res. Lepid.* 25:52-62.
- WHITE, R. R., 1987. The trouble with butterflies. *J. Res. Lepid.* in press.
- WHITE, R. R., & M. P. LEVIN, 1981. Temporal variation in insect vagility: implications for evolutionary studies. *Am. Midl. Nat.* 105:348-357.
- WHITE, R. R., & M. C. SINGER, 1974. Geographical distribution of host plant choice in *Euphydryas editha* (Nymphalidae). *J. Lepid. Soc.* 28:103-107.
- WILCOX, B. A., & D. D. MURPHY, 1985. Conservation strategy: the effects of fragmentation on extinction. *Amer. Nat.* 125:879-887.
- WILLIAMS, E. H., 1981. Thermal influences on oviposition in the montane butterfly *Euphydryas gillettii*. *Oecologia* 50:342-346.
- WILLIAMS, E. H., & M. D. BOWERS, 1987. Factors affecting host plant use by the montane butterfly *Euphydryas gillettii* (Nymphalidae). *Am. Midl. Nat.* (in press).
- WILLIAMS, E. H., C. E. HOLDREN, & P. R. EHRLICH, 1983. The life history and ecology of *Euphydryas gillettii* Barnes (Nymphalidae). *J. Lepid. Soc.* 38:1-12.
- WILLIAMS, K. S., 1981. The coevolution of the checkerspot butterfly *Euphydryas chalcedona* and its larval host plants. Ph. D. Thesis, Stanford Univ.
- WILLIAMS, K. S., 1983. The coevolution of *Euphydryas chalcedona* butterflies and their larval host plants. III. Oviposition behavior and host plant quality. *Oecologia* 56:336-340.
- WILLIAMS, K. S., D. E. LINCOLN, & P. R. EHRLICH, 1983. The coevolution of *Euphydryas chalcedona* butterflies and their larval host plants. II. Maternal and host plant effect on larval growth, development, and food-use efficiency. *Oecologia* 56:330-335.
- WILLIAMS, K. S., D. E. LINCOLN, & P. R. EHRLICH, 1983. Coevolution of *Euphydryas chalcedona* butterflies and their larval host plants. I. Larval feeding behavior and host plant chemistry. *Oecologia* 56:323-329.

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Aberrant Polyommatinae (Lycaenidae) from Ohio and Florida

Aberrant Polyommatinae have recently been illustrated by Wright (1979, *J. Lepid. Soc.* 33: 266) and Neil (1983, *J. Lepid. Soc.* 37: 258). Presented here are three extreme aberrations in pattern not previously recorded.

On 19 April 1986, at Shade River State Forest, Meigs Co., Ohio, an aberrant female *Glaucopsyche lygdamus lygdamus* (Doubleday) was collected in a rich stream valley near Forked Run State Park. The individual was found in